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THE LEPROSY OF THE BIBLE IN ITS MEDICAL ASPECT

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The word leprosy occurring in our English Bible is commonly interpreted as referring to the disease known today by the same name. Whether identity exists or not is of more than academic interest, for there are many reasons for believing that the extraordinary fear of leprosy, which is so universally present today and which has worked hardship and misery to so many unfortunate victims of the disease, is a result, in part at least, of the influence of the biblical references to "leprosy." These accounts, when interpreted literally, depict the condition as most terrible, and belief in them is widespread since the Bible, accepted by millions as a revelation of the divine, is the most read book in the world.

What was the *zaraath* of the Hebrews, the leprosy of the Old Testament?

To this question much thought has been given. The conclusions reached are by no means uniform. A noticeable feature present in practically all of the work done by medical investigators is the endeavor to build up a disease entity from the meager array of symptoms given, and thus to identify *zaraath* with some known disorder; while at the same time, the purpose of the law of leprosy as sanitary being accepted without a question, no careful investigation is made of the true significance of the "uncleanness" of *zaraath*, so constantly referred to in the biblical text. The theologians, on the other hand, have understood better the meaning of "unclean," but have not been able to estimate the value of the medical descriptions of *zaraath*. The divorce of the medical and religious in the consideration of the problem is obviously a mistake; a rational conclusion is scarcely possible if the effort toward it does not take cognizance of both these factors, assigning to each a proper value in the final summary of evidence.

Leprosy is a disease probably as old as the human race, but early evidences of its existence are difficult to trace. It is supposed to have originated in Egypt. Manetho, an Egyptian historian, writing in Greek about 300 B.C., states that at the time of the great exodus there were eighty thousand Hebrews afflicted with "lepra" in Egypt. This word *lepra* which, after centuries of confusion, became synonymous with "leprosy" about 60 years ago, was coined by the Greeks, and is derived from an Indo-Germanic root *lap*, meaning "to scale," "to peel off." It was used by Hippocrates, who lived in the fifth century B.C., to designate skin conditions characterized by scaling. In the first century B.C. the name "elephantiasis" was given to what seems to have been true leprosy. Celsus, at the time of Jesus, describes under that caption a condition which is plainly leprosy. It appears, therefore, that at the beginning of the Christian era *lepra graecorum* and *elephantiasis graecorum* were conceived as separate and distinct conditions, the former including various scaling skin diseases, the latter referring to true leprosy.

In the Septuagint we find the first rendition of the Hebrew *zaraath* into another language. This translation, which was held in special esteem, was begun in Alexandria about 250 B.C., not many years after Manetho, a resident of that city, had made his statement as to the number of Hebrews affected with *lepra* at the time of the exodus from Egypt, and before the description of true leprosy as *elephantiasis graecorum*. The translators of the Septuagint, probably influenced by the words of Manetho and practically without knowledge of the condition *elephantiasis*, rendered the Hebrew word *zaraath* as *lepra*, and we are warranted in affirming that the pathological significance attaching to the word *lepra* as understood by them was that given it by Hippocrates, i.e., a condition of the skin characterized by scaliness.

When the writings of the Arabian physicians were first translated into Latin in the eleventh century a curious error occurred which served to add to the word *lepra* the significance of *elephantiasis graecorum* (leprosy). Under the name *judham* the Arabians presented the clinical picture of true leprosy; under the caption *dal fil*, an expression meaning "elephant's foot," they described

a condition which we recognize today and which has no relation to leprosy. The translators into Latin, noting the similarity of idea in the words *dal fil* and *elephantiasis*, made them equivalent in their rendition. *Judham* or true leprosy was translated *lepra*. By this double error *elephantiasis graecorum*, the equivalent of *judham*, both meaning true leprosy, was made the equivalent of *lepra*, which term thereby came to have two meanings: scaliness of the skin (the original Hippocrates significance), and *elephantiasis graecorum* (leprosy). When in the Authorized Version, therefore, the *zaraath* of the Hebrews was rendered leprosy, an added meaning, that of *elephantiasis graecorum*, was given to the Hebrew word which did not reside in *lepra*, the equivalent of *zaraath* in the Septuagint.

The references to leprosy in the Old Testament may roughly be classed into two groups. The first comprises those in which the disease is associated with elements which are miraculous in nature, as the sudden development of leprosy in an individual as a token of God's power or as a punishment for wrongdoing, or the healing of leprosy by a prophet. In these instances the root meaning of *zaraath*, "to strike suddenly," is evident. The second group has to do with the so-called "law of leprosy," i.e., the body of regulations which were to guide the Hebrews in all matters relating to that condition. In Lev., chaps. 13 and 14, is found an extensive account of leprosy as seen in man, in a garment, and in a house, and of the relations which the person or thing affected must sustain to the people of Israel at large. As to human leprosy, elaborate directions are given which were to guide the priests in the recognition of the disorder, the rendition of the verdict unclean, the separation of the victim from among the people, and the purification necessary before restoration to a state of cleanliness. Respecting the singular conceptions, "garment leprosy" and "house leprosy," full details are given, and the rules laid down for the recognition of the leprosy and for the isolation, destruction, or purification of the garment or house affected strongly resemble the preceding laws relating to the human disorder. Finally the purpose of the "law of leprosy" is declared.

To the first group mentioned belong the story of the leprosy of

Moses, found in Exod. 4:6-7; of Miriam, Num., chap. 12; of Namaan, II Kings, chap. 5; and of Uzziah, II Chron., chap. 26. In these, in addition to the idea of sudden infliction as a punishment for wrongdoing, the notion of "whiteness" of the disease is emphasized. Whiteness is in no sense a constant characteristic of true leprosy; in fact it is rarely seen, and never in such a degree as to constitute a dominating clinical element. Whiteness "as snow" is conceivable in certain forms of skin eruptions attended with scaling, i.e., the Hippocratic *lepra*.

In the so-called "law of leprosy," found in Lev., chaps. 13 and 14, four points are made prominent: the recognition of leprosy, the rendition of the verdict unclean, the separation of the victim from among the people, and the later purification of the leper. Literal interpretation of this portion of the Scriptures is largely responsible for the widespread belief in the awfulness of leprosy and in its profound contagiousness. In these chapters we find a series of descriptions of skin conditions which were to be pronounced leprous by the priest. These are meager and crudely drawn clinical pictures, and associated with them are certain differential criteria intended to assist the priest in properly distinguishing between the leprous and the non-leprous. There are mentioned, in all, eleven states of pathological change in the skin which were to be called leprosy; and paired with each of these except the last are conditions similar in sign and symptom, but with one or more differentiating characteristics which place them in the non-leprosy category. Throughout these descriptions a certain uniformity is present. The first is found in vss. 1-7 and is fairly representative of the others.

1. And the Lord spake unto Moses and Aaron saying, 2. When a man shall have in the skin of his flesh a rising, a scab, or bright spot, and it be in the skin of his flesh like unto the plague of leprosy; then he shall be brought unto Aaron, the priest, or unto one of his sons, the priests: 3. And the priest shall look on the plague in the skin of the flesh; and when the hair in the plague is turned white and the plague in sight be deeper than the skin of his flesh, it is the plague of leprosy; and the priest shall look upon him and pronounce him unclean.

A brief analysis of these verses will show their actual value as descriptive of disease:

The word "swelling" is given as a substitute reading for "rising" (*seth*); an elevated lesion is unquestionably referred to. The meaning of "scab" (*sappahath*) is very doubtful; it is supposed to refer to a gathering, an eruption. If we accept "scab" as the rendition, we must understand the condition to be one characterized by crust-formation, the result of the desiccation of pathologic secretions upon the skin. A "white spot" (*bahereth*) would seem to describe a condition of shining or brightness; something that would stand out in contrast to the normal skin; in view of the notion "fiery" which exists in the Hebrew word, we might with propriety consider the spot to present a bright red color. We have, therefore, three simple conditions which were to be shown to the priest as suspicious of leprosy:

1. An elevation or "rising" of the skin.
2. A crusted lesion upon the skin (more broadly, a skin eruption of some indefinite sort).
3. A spot on the skin characterized by shininess; glistening, possibly fiery red.

With these before him, the priest is directed to make the diagnosis of leprosy if the hair in the lesion be turned white and if the lesions be lower than the surrounding skin. In the absence of these two differential signs, the diagnosis of "scab" is to be made if the lesion fades and does not spread after an isolation of fourteen days. If, however, after this period of observation, the "scab" spreads in the skin, it becomes leprosy (vss. 4-7). Hence, as set forth in these verses, the leprosy complex may be:

1. An elevated lesion of the skin from which white hair is growing or which is depressed below the surrounding skin level (!), or which spreads to other parts of the body surface.
2. A crusted lesion of the skin which presents a growth of white hairs or which is depressed below the surrounding level (i.e., a crust-covered ulcer), or which spreads to other parts.
3. A spot contrasting with the normal skin, shining, glistening, or fiery red, which presents a white hair or which spreads to other parts.

When we endeavor to place these symptom-groups in any specific disease category, we encounter difficulty at once. With possibly one or two exceptions, they are not characteristic of any

definite skin disease, and from them no diagnosis is possible. They could be present in scores of diseased conditions of the skin in which inflammation is a factor, including leprosy. A raised skin lesion in which a growth of white hair is present cannot by any distortion be declared leprosy, without other determinate findings, though in popular belief leprosy is white. An elevation of the skin which is depressed below the surrounding surface is logically an absurdity. The spread of a raised lesion cannot, rationally, constitute a leprosy. A crust-covered ulcer may be found in leprosy, but it may also appear in many other cutaneous diseases, as cancer, smallpox, syphilis, and tuberculosis; it is not, therefore, a decisive factor in the differential diagnosis of a skin condition. Hair is not usually found growing in an ulcer, nor is the spread of an ulcer in any sense a specific evidence of a leprous condition. The differential criteria, white hair, depression, and spreading, are absurdly insufficient to constitute a dividing line between harmless skin diseases and leprosy. The third complex given might, without great distortion, be considered fairly descriptive of two alterations from the normal in the skin (provided we omit the notion "fiery red" from the original), known as vitiligo and morphea. These are relatively rare conditions, non-contagious, and in no way related to the disease leprosy.

It is plain from this analysis that true leprosy is not described in these seven verses. The remaining clinical pictures present striking similarities to the first one. In general the recorder stays within a relatively narrow circle in his description; the terms used are generic rather than specific, and there is almost a complete absence of modifying factors which are so essential in separating one disease from another. The paucity of clinical facts available from the diagnosis will be seen if we classify those which count for leprosy. The essential clinical elements in the eleven conditions considered leprous are as follows:

1. Scab; rising or bright spot; hair in lesion turned white; depression of lesion below surrounding skin (vss. 1-3).
2. Spread of lesion under observation without hair in lesion or depression of lesion (vss. 4-8).
3. Rising; hair turned white in lesion; raw flesh (vss. 9-11).
4. Raw flesh (vss. 14-15).

5. Boil; white rising, somewhat reddish; hair turned white in the lesion; depression of lesion (vss. 18-20).
6. Spread of lesion under observation, without depression and without white hair (vs. 22).
7. Hot burning (or burn); quick flesh; white bright spot, somewhat reddish; hair turned white in lesion; depression of lesion (vss. 24-25).
8. Spread of lesion under observation, without white hair or depression (vss. 26-27).
9. Plague; dry scall; depression of lesion; thin yellowish hair in lesion (vss. 29-30).
10. Spread of lesion under observation, without depression and without yellow hair (vss. 31-36).
11. White reddish sore in forehead (vss. 42-44).

In this enumeration, certain elements more or less similar are primary in their use; that is, they form the basis of the further description. These terms so fundamentally used are as follows:

Rising, scab, bright spot, quick raw flesh, burning or burn, plague, scall, sore.

It will be seen that these are generic terms applicable to many conditions. The factors which modify the primary lesions are:

Depression of the surface of the part affected, occurring four times.

Hair turned white in the lesion: four times.

Spread of the lesion under observation without white hair (in one instance yellow hair), and without depression of lesion: four times.

Reddish color in lesion: three times.

Assuming that these terms are actually differential (which they are not), their number and variety are far too scant effectually to distinguish leprosy from the many other skin affections which must have prevailed at that time. It is futile to attempt to discover from the context precisely what diseases were included in the several descriptions; at best one may say all the conditions mentioned are inflammations and these comprise at least two-thirds of all diseases of the skin. The purpose of the chapter cannot be to define the disease leprosy; viewed medically, it presents simply a grouping of indefinite descriptions, applicable in a meager degree to many forms of the skin diseases of the inflammatory type, including leprosy, and characteristic of none.

That the central thought is uncleanness and not leprosy is made apparent in the last verses of chap. 14:

54. This is the law for all manner of leprosy and for a scall. 55. And for the leprosy of a garment and of a house and for a rising and for a scab and for a bright spot. 56. To teach when it is unclean and when it is clean. This is the law of leprosy.

Moreover the law of leprosy, by its position in the Book of Leviticus, is plainly a part of an extensive code of laws relating to the clean and the unclean found in chaps. 11-17.

In considering the significance of "uncleanness" the question immediately presents itself, Were not the laws relating to leprosy in reality sanitary measures devised by an extraordinarily capable law-giver for a people who needed such legislation?

In answering this question a distinction must be made between intention and effect. It is extremely doubtful if the purpose of these laws was the furtherance of sanitation. On the other hand, it is very probable that they contributed to that end. The arbitrary differences between the clean and the unclean, so elaborately set forth in the record, are not in keeping with the requirements of sanitary law. The line which separates the safe and the unsafe as regards health is not determined by factors which are inconsequential both in themselves and in their relations to diseased conditions, as, for instance, white hairs, or white hairs growing in a lesion of the skin. The extensive sacrificial and ritualistic procedure necessary for purification argue a religious and not a sanitary intent behind the giving of the law. Further, it must be remembered that modern medical science is a development of relatively recent time; the nineteenth century witnessed greater advancement in medicine and its allied subject, sanitation, than all the previous periods of the world's history. At the time Moses, the great leader of the nomadic Hebrews, is supposed to have lived—about 1200 B.C.—or at the time the Levitical record was committed to writing—about 400 B.C.—or at any time between these two periods—it is highly improbable, considering the state of civilization known to exist among the Semitic nations within the dates given, that such elaborate laws as those of the Mosaic code which relate to the clean and the unclean would have been devised or even thought of as sanitary measures.

It is not to be denied, however, that the Levitical law relative

to leprosy operated favorably in the direction of public health. Certain commands, repeatedly enjoined, were distinctly hygienic in tendency, as the bathing of the body, and the washing of the clothes in the process of purification; the temporary isolation of individuals doubtfully "clean," some of whom were unquestionably afflicted with contagious inflammatory skin diseases; and the complete separation from the people of those wholly unclean, among which number some, perhaps many, were doubtless capable of harming others by reason of their physical condition. But while the hygienic effect of the Mosaic law cannot be successfully disputed, a like statement regarding the purpose of the law is not warranted; hence we may regard the sanitary features as accidental and not the result of plan. The true explanation of clean and unclean must be sought in the religious conceptions of the times, so intimately associated with the Hebrew law in all its relations; and the fact that the Hebrew word *timme*, which is rendered "to pronounce unclean," may be translated "to declare unfit to associate with the worshipers of Deity" lends confirmation to this view.